

Course Number	M2795.005700	Lecture Number	001	Course Title	Advanced Dynamics	Credit	3	
Instructor	Name	Kim, Ji-Hwan (Position Professor)			Homepage	http://odyssey.snu.ac.kr		
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	Consult Time and Place : Mon, Wed :11AM~Noon / 301Bldg1306							
Prerequisite	Dynamics,							
* 1. Goals	Aim of this course work is to introduce the systematic approach in the analytical formulation of the governing equations. Lagrangian approach is the start point based on the generalized coordinate system for n-dof model. For more general case in the continuous system, Hamilton principle is developed using the Calculus of Variation.							
* 2. Text	JOSEP S. TOROK, Analytical Mechanics with an Introduction to Dynamical systems, John-Wiley & Sons. Inc							
* 3. Evaluations	Attendance	Assignment	Mid	Final	Quiz	Participation	Others	Total
	5%	15%	30%	30%	10%	5%	5%	100%
	Remark :							
*4. Lecture Plan	Contents							
	<ul style="list-style-type: none"> -Mechanics, Basic Principles of Mechanics, Kinematics -Conservative Systems, Systems of Particles, Motion in No-inertial Reference Frames -Coordinate Transformations, Time Rate of Change of a Unit Vector, Work & Energy -Planar motion of Rigid Bodies, Virtual Work, Holonomic Systems -Kinetic Energy and Generalized Momenta, Generalized Force -Lagrange's Equations of Motion, Conservative Systems -Dissipative Sytems, Electromechanical Analogies, -MID EXAM -Extrema of Functions, Necessary Conditions for an Extremum -Special Cases of the Euler-Lagrange Equation -The Variational Operator -Generalizations, Several Independent Variables -Variational problems with constraints, Hamilton's Principle -Kinematics of Rotating Bodies, Motion Relative to Moving Axes -The Inertia Tensor, Translation Theorem for Angular Momentum -Equations of Motion for a Rigid Body, Euler's Equations of Rotating Body Motion -FINAL EXAM 							
5. Guideline for student	Practice							